Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services

STATEMENT OF BASIS

NORCO REFINERY
AGENCY INTEREST NO. 1406
MOTIVA ENTERPRIESE LLC
NORCO, ST. CHARLES PARISH, LOUISIANA
Activity Number: PER120060001
Draft Permit 2501-V1

I. APPLICANT:

Company:
Motiva Enterprises LLC
15536 River Road, Norco, LA 70079

Facility:
Norco Refinery
Approximate Coordinates: Latitude 29 deg., 59 min., 58 sec. and Longitude 90 deg., 24 min., 13 sec. Zone 15.

Permit Writer:
Syed Quadri
Office of Environmental Services, Permits Division

II. FACILITY AND CURRENT PERMIT STATUS AND PROPOSED PERMIT INFORMATION:

Motiva Enterprises (Motiva) LLC owns and operates a petroleum refinery, Norco Refinery, in Norco, St. Charles Parish, Louisiana. The Norco Refinery manufactures petroleum products from crude oil, condensate, natural gas condensate, and partially refined products such as gas oil. Other products include LPG, Finished Gasoline, Diesel, Aviation Turbine Fuel, Heating Oils, Residuals, Coke, and Sulfur.

This permit deals only with the Coker Unit, Distillation Units and the Kerosene Unit which are currently permitted under Permit No. 2501-V0 dated January 14, 1998. Motiva is restructuring their permits based on the formation of a new entity, Motiva Enterprises LLC. Shell Oil Company, Texaco Inc., and Saudi Aramco formed Motiva Enterprises LLC, a joint venture combining major elements of the three companies' eastern and Gulf Coast refining and marketing businesses. With the formation of Motiva, the refinery has been under the new management and the refining and chemical assets of the Shell Norco East Site (before merger) are no longer wholly owned by the same parent company, Shell Oil Company.

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Motiva Enterprises, LLC proposes to modify the Distillation Unit to increase the processing capability of the unit. In order to achieve this goal, the Distillation Unit (DU-5) shall be modified as follows:

1. Install two new heat exchangers in Tray 63 to reduce pressure and increase heat recovery;
2. Move Vacuum Flasher Tray 2 heat exchangers upstream of Tray 29 and add two new heat exchangers to Tray 2 and Tray 29 to increase heat recovery;
3. Move a crude booster pump upstream of Tray 29 exchangers to ensure sustainable crude pressure;
4. Add a new heat exchanger on the pitch product circuit in parallel to an existing heat exchanger and modify the configuration of heat exchangers to increase heat recovery;
5. Change the current configuration of the existing heat exchangers of the heavy gas oil on the crude side;
6. Replace the fractionating trays in the kerosene and heavy gas oil sections of the Upper Crude Column with HyFy tray design to reduce vapor loading;
7. Replace a demister in the top of the Vacuum Flasher to reduce fouling and pressure constraints;
8. Modify the Vacuum Flasher Tray 4 pump to improve separation and reduce possible entrainment to the top demister; and
9. Add and replace ancillary equipment and piping.

The DU-5 modification will increase the utilization of the Kerosene Treater Unit, Naphtha Hydrotreater (NHT) Unit, 2nd Stage of the Hydrocracker Unit (HCU), Catalytic Reformer No. 1 (CR-1), MTBE Unit, Sulfur Plant S-2 and S-3, Logistics I and II. These units will realize incremental emission increases but the projected emissions will not exceed the permitted emissions, therefore the increase in emissions is considered as zero.

The following units will not be affected by the DU-5 modification; Catalytic Reformer No. 2, Reformer Catalytic Cracking Unit, Hydrocracker Unit 1st Stage, Alkylation Unit, Coker Unit, DHT Unit, and Hydrogen Unit and Steam Methane Reformer.

Prevention of Significant Deterioration (PSD) review is required for the modification of an existing major source that results in a significant increase of regulated pollutants. Emissions increases due to the DU-5 Project for all criteria pollutants are not above the significance levels based on the EPA's NSR Reform Rules. The following tables show the emissions increases due to the DU-5 Project in tons per year.

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Pollutant	1998/1999 Average Emissions	Accommodated Emissions	Projected DU-5 Project Emissions	Net Emissions Increase
PM_{10}	32.74	44.87	49.93	5.06
SO_2	73.91	299.55	322.33	22.78
NO_X	886.13	1149.93	989.91*	23.81
CO	394.74	584.81	645.31	60.50
VOC	120.31	206.90	243.02	36.12
H_2S	0.00	0.00	2.00	2.00

* The emissions have been reduced due to addition of controls like Ultra Low NO_X Burners (ULNB) etc.

The 1998/1999 average emissions for PM_{10}, SO_2, NO_X, and CO were chosen as baseline emissions based on the EPA selection under the Consent Decree (H-01-0978) entered on August 21, 2001. The 2003/2004 average emissions for VOC were chosen as baseline emissions. The NSR Reform states that the net emissions increase is the increase in emissions from a modification at a stationary source which is the difference between the projected actual emissions (shall exclude that portion of the unit's emissions which could have been accommodated during the consecutive 24-month period used for baseline actual emissions) and the baseline actual emissions for the consecutive 24-month period in the last 10 years in tons per year.

Prevention of Significant Deterioration review is not required as the net emissions increase due to the DU-5 Project is less than the PSD significance level for the criteria pollutants as shown in the table above.

In addition, the facility is proposing to incorporate recent approved permit actions, other changes based on current operating conditions, and update the Insignificant and General Condition XVII activities:

1 Incorporate the requirements of Small Source Exemption dated October 13, 2001 for the Coker Unit Pitstop Turnaround and combine the Pitstop fugitives emissions with the overall Coker Unit Fugitives;
2 Combine the Kerosene Relief fugitives emissions with the overall Kerosene Treater Fugitive Emissions and add a Kerosene Relief Tank which were permitted under the Small Source Permit dated March 2, 2001;

3 Incorporate the Kerosene Clay Filter Cleaning Operations approved under the Case-by-Case Insignificant Activity;
4 Transfer three Storage Tanks K-7800, K-556, and A-410 emissions from Part 70 Permits No. 2899-V0 dated July 29, 2004 and No.2510-V1 dated July 21, 2000;
5 Incorporate the requirements of Authorization to Construct dated December 13, 2005, for the installation of Ultra Low NO_X Burners in the Vacuum Flasher Furnaces F-37 and F-38;
6 Create a Cap for Crude Charge Heaters F-35 and F-36 to add operational flexibility as these heaters have three common emission stacks; and
7 Permit emissions from Vacuum Flasher Charge Heaters F-37 and F-38 under one emission source as these heaters have a common emissions stack.

Several Part 70 permits addressing portions of the facility have already been issued. These include:

Permit #	Units or Sources	Date Issued
2501-V0	CDK, Shell Norco Refining Company	1/14/1998
2502-V1	CND, Shell Norco Refining Company	1/10/2005
2510-V0	Shared Sources, Motiva Enterprises LLC	7/21/2000
2600-V0	Alky Unit, Motiva Enterprises LLC	4/29/1999
2601-V0	MTBE Unit, Motiva Enterprises LLC	4/29/1999
2602-V0	RCCU, Motiva Enterprises LLC	1/13/2004
2628-V1	H2, Motiva Enterprises LLC	1/10/2005
2629-V1	HCU, Motiva Enterprises LLC	4/14/2005
2794-V1	LSG, Motiva Enterprises LLC	3/11/2005
2902-V0	S-2, Motiva Enterprises LLC	12/20/2004
2903-V0	S-3, Motiva Enterprises LLC	12/20/2004

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Permitted Air Emissions

Permitted emissions from the CDK Unit post DU-5 Project in tons per year are as follows:

Pollutant	Before	After	Change
PM_{10}	74.56	50.57	- 23.99
SO_2	157.07	150.75	- 6.32
NO_X	2660.28	876.46	- 1783.82
CO	201.65	449.77	+ 248.12*
VOC	719.94	665.85	- 54.09

* Due to updated emission factor (EPA)

Prevention of Significant Deterioration Applicability

Prevention of Significant Deterioration (PSD) review is not required as the total estimated emissions increase of criteria pollutants for both the projects are less than the PSD significance level.

This application was reviewed for compliance with the Louisiana Part 70 operating permit program, Louisiana Air Quality Regulations, Louisiana Comprehensive TAP Emission Control Program, NSPS, NESHAP. PSD regulations do not apply.

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to Section VIII of the draft Part 70 permit.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to Section IX of the draft Part 70 permit.

III. Permit Shields

No permit shields are being granted at this time.

IV. Periodic Monitoring

Part 70 Permit Section "Specific Requirements" requires Motiva to comply with the streamlined equipment leak monitoring program. And the Louisiana MACT Leak Detection and Repair (LDAR) Program approved on July 26, 1994 under "Louisiana MACT Determination for Refinery Equipment Leaks (LDREL)".

V. Applicability and Exemptions of Selected Subject Items[1]

ID No:	Requirement	Notes
EQT107, 108, 110, 111, and 151 1-81, 19-71, 3-76A/B and 29-71 Coker Charge Heater F-125 VF Charge Heater F-37&38 Coker Charge Heater F-35 Coker Feed Heater F-51	Comprehensive Toxic Air Pollutant Emission Control Program, LAC 33:III.5109.A - State only	Exempt: Burns natural gas and refinery fuel gas.
EQT110, 111, 116, 117, and 118 54-71, 8-95, and 9-95 Coker Blowdown and Drum Vents No. 1 and 2	NESHAP, Subpart CC – Petroleum Refineries, Miscellaneous Process Vents	Does not meet the definition of a miscellaneous process vent

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VI. Streamlined Requirements

Unit or Plant Site	Programs Being Streamlined	Stream Applicability	Overall Most Stringent Program
Coker Unit, Distillation Unit, and Kerosene Unit	NESHAP Subpart CC	Streams containing 5% VOHAP	LA Refinery MACT dated July 26, 1994 including exception approved by LDEQ
	NSPS Subpart GGG	Streams containing 10% VOC	
	LA Refinery MACT	5% Air Toxics	
	LAC 33:III.2121	Streams containing 10% VOC	

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VII. Glossary

Best Available Control Technologies (BACT) - An emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under this part which would be emitted from any proposed major stationary source or major modification which the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

Carbon Monoxide (CO) – A colorless, odorless gas which is an oxide of carbon.

Grandfathered Status- Those facilities that were under actual construction or operation as of June 19, 1969, the signature date of the original Clean Air Act are not required to obtain a permit. Facilities that are subject to Part 70 (Title V) requirements lose grandfathered status and must apply for a permit.

Hydrogen Disulfide (H_2S) - A colorless inflammable gas having the characteristic odor of rotten eggs, and is found in many mineral springs. It is produced by the action of acids on metallic sulfides, and is an important chemical reagent.

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

New Source Review (NSR) - A preconstruction review and permitting program applicable to new or modified major stationary sources of air pollutants regulated under the Clean Air Act (CAA). NSR is required by Parts C ("Prevention of Significant Deterioration of Air Quality") and D ("Nonattainment New Source Review").

Nitrogen Oxides (NO_x) - Compounds whose molecules consists of nitrogen and oxygen.

Nonattainment New Source Review (NNSR) - A New Source Review permitting program for major sources in geographic areas that do not meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. Nonattainment NSR is designed to

ensure that emissions associated with new or modified sources will be regulated with the goal of improving ambient air quality.

Organic Compound - Any compound of carbon and another element. Examples: Methane (CH_4), Ethane (C_2H_6), Carbon Disulfide (CS_2)

Part 70 Operating Permit- Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: ≥10 tons per year of any toxic air pollutant; ≥25 tons of total toxic air pollutants; and ≥100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10}- Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) - The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide (SO_2) – An oxide of sulphur.

Title V permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) - Any organic compound which participates in atmospheric photochemical reactions; that is, any organic compound other than those which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.